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EXAMINER	
SU, SARAH	

  

ART UNIT	PAPER NUMBER
2431	

  

NOTIFICATION DATE	DELIVERY MODE
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/564,187	<b>Applicant(s)</b> ITO ET AL.	
	<b>Examiner</b> Sarah Su	<b>Art Unit</b> 2431	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 2-16,35,40-42 and 50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,17-30,36-39 and 43-49 is/are rejected.
- 7) ☒ Claim(s) 31-34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/11/06, 7/20/09, 4/9/10</u> .                                | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-50 are presented for examination.

### ***Election/Restrictions***

2. Applicant's election without traverse of claims 1, 17-34, 36-39, and 43-49 in the reply filed on 26 May 2010 is acknowledged.
3. Claims 2-16, 35, 40-42, and 50 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 26 May 2010.

### ***Priority***

4. The claim for priority from PCT/JP04/09536 filed on 5 July 2004 is duly noted.
5. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Objections***

7. Claims 1, 36, 37, 39, 43-49 are objected to because of the following informalities:
- a. In claim 1, line 6: “a physical header section” is unclear if it relates to “a physical layer header section” (claim 1, line 3) and should read –the physical header section–;
  - b. In claim 1, line 6: “a data section” is unclear if it relates to “a data section” (claim 1, line 4);
  - c. In claim 1, line 9: “a physical header” is unclear if it relates to “a physical layer header section” (claim 1, line 3);
  - d. In claim 1, line 9: “a data section” is unclear if it relates to “a data section” (claim 1, line 4);
  - e. In claim 36, line 6: “an initial value” is unclear if it relates to “an initial value” (claim 36, line 4);
  - f. In claim 37, line 6: “a physical layer header section” is unclear if it relates to “a physical layer header section” (claim 37, lines 2-3);
  - g. In claim 39, line 3: “an initial value” is unclear if it relates to “an initial value” (claim 38, line 4);
  - h. In claim 43, lines 6 and 7: “an initial value” is unclear if it relates to “an initial value” (claim 43, line 2);
  - i. In claim 44, line 9: “an initial value” is unclear if it relates to “an initial value” (claim 44, lines 5-6);

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- j. In claim 44, line 10: "a parity signal" is unclear if it relates to "a parity signal" (claim 44, lines 6-7);
- k. In claim 45, line 5: "a physical layer header section" is unclear if it relates to "a physical layer header section" (claim 45, line 2);
- l. In claim 45, lines 7-8: "a data section" is unclear if it relates to "a data section" (claim 45, line 3);
- m. In claim 46, lines 7 and 8: "an initial value" is unclear if it relates to "an initial value" (claim 46, line 3);
- n. In claim 47, line 11: "an initial value" is unclear if it relates to "an initial value" (claim 47, lines 7-8);
- o. In claim 47, line 12: "a parity signal" is unclear if it relates to "a parity signal" (claim 47, lines 8-9);
- p. In claim 48, line 6: "a physical layer header section" is unclear if it relates to "a physical layer header section" (claim 48, line 3);
- q. In claim 48, lines 8-9: "a data section" is unclear if it relates to "a data section" (claim 48, line 3);
- r. In claim 49, line 2: "an initial value" is unclear if it relates to "an initial value" (claim 38, line 4);
- s. In claim 49, line 3: "a physical layer header section" is unclear if it relates to "a physical layer header section" (claim 38, line 5).

Appropriate correction is required.

***Drawings***

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4)

because:

- a. reference character “210” has been used to designate both “initial value” and “initializing method” (Figure 6);
- b. reference character “280” has been used to designate both “initial value” and “parity check” (Figure 7);
- c. reference character “307” has been used to designate both “delay unit” and “block-code decoder” (Figure 10).

9. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they include the following reference character(s) not mentioned in the description: 230, 300 (Figure 6); 260, 300 (Figure 7); 250 (Figures 10, 13); 158a (Figure 38).

10. The drawings are objected to because “S915” in Figure 8 should read –S916–.

11. Figures 32-38 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and

where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 101***

12. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

13. Claims 1, 36-39, and 45-49 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 recites a "system (or program)" solely comprising a wireless communication system for communicating transmission data. An embodiment of the wireless communication system is simply a piece of software, as described in the Specification (see paragraph [0059], lines 1-3). Thus, for purposes of examination, the examiner interprets the recited "system" to be software per se. That is, the recited "system" is not a process, a machine, a manufacture or a composition of matter.

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Accordingly, the "system" is not a "process," a "machine," a "manufacture" or a "composition of matter," and claim 1 fails to recite statutory subject matter, as defined in 35 U.S.C. 101.

Claims 36 and 38 recite a "system (or program)" solely comprising a wireless communication apparatus for communicating transmission data. An embodiment of the wireless communication apparatus is simply a piece of software, as described in the Specification (see paragraph [0059], lines 1-3). Thus, for purposes of examination, the examiner interprets the recited "system" to be software per se. That is, the recited "system" is not a process, a machine, a manufacture or a composition of matter.

Accordingly, the "system" is not a "process," a "machine," a "manufacture" or a "composition of matter," and claims 36 and 38 fail to recite statutory subject matter, as defined in 35 U.S.C. 101.

Claims 37, 39, and 49 merely recite additional features of the apparatus. Thus, claims 37, 39, and 49 do not further define the recited "system" as being within a statutory process, machine, manufacture or composition of matter.

Claim 45 is rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore are not seen as a statutory process. The wireless communication method including steps of generating and performing scrambling and descrambling is broad enough that the claim could be completely performed mentally, verbally or without a machine nor is any transformation apparent.



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For example generating an initial value and scrambling/descrambling data could be performed by a human.

Claims 46-48 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Claims 46-48 recite “a computer program which is described in a computer-readable format” which typically covers forms of non-transitory tangible media and transitory propagating signals *per se* in view of the ordinary and customary meaning of computer readable media. Therefore, claims 46-48 are considered to be non-statutory. It is noted that adding the limitation “non-transitory” to the claim would exclude transitory propagating signals *per se* and would thus make the claim statutory.

Accordingly, claims 1, 36-39, and 45-49 fail to recite statutory subject matter as defined in 35 U.S.C. 101.

### ***Claim Rejections - 35 USC § 102***

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1, 17-21, 28, 36-39, 44, 45, and 47-49 are rejected under 35

U.S.C. 102(b) as being anticipated by Ogawa et al. (US Patent 5,787,179 and Ogawa hereinafter).

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As to claim 1, Ogawa discloses a system and method for scrambling and descrambling of data with improved security, the system and method having:

**a physical layer header section (Packet Header, Figure 4);**

**a data section (Packet Data, Figure 4);**

**wherein on the transmission side, a scrambling initial value is generated using at least a part of a physical header section, and scrambling of a data section is performed using the scrambling initial value (col. 2, lines 47-53; col. 8, lines 19-23, 43-47);**

**wherein on the reception side, a descrambling initial value is generated using at least a part of a physical header, and descrambling of a data section is performed using the descrambling initial value (col. 2, lines 47-53; col. 8, lines 19-23, 43-47).**

As to claim 17, Ogawa discloses:

**communication means for transmitting/receiving transmission data over a communication channel (col. 1, lines 41-44);**

**scrambling/descrambling initial-value generating means for generating an initial value when scrambling or descrambling using at least a part of a physical layer header section (col. 8, lines 19-23, 43-47);**

**scrambling/descrambling means for performing scrambling or descrambling of a data section using said initial value (col. 2, lines 47-53).**

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As to claim 18, Ogawa discloses:

**wherein said scrambling/descrambling means generate a transmission signal sequence scrambled by calculating an exclusive-OR operation between a scrambled sequence generated from a scrambling initial value and a transmission data sequence, or descramble a reception data sequence by calculating an exclusive-OR operation between a descrambled sequence generated from a descrambling initial value and a reception signal sequence scrambled (col. 3, lines 11-14, 20-23).**

As to claim 19, Ogawa discloses:

**wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means take an n-bit sequence obtained by extracting n bits from a physical layer header section or a part thereof based on a rule common with an other party of communication, as said initial value when scrambling/descrambling (col. 10, lines 19-22, 30-34).**

As to claim 20, Ogawa discloses:

**wherein said scrambling/descrambling initial-value generating means generate said initial value when scrambling/descrambling by**

**extracting n bits including fields of which all bits are not zero (i.e. no PTS),  
of a physical layer header section (col. 9, lines 38-41).**

As to claim 21, Ogawa discloses:

**wherein said scrambling/descrambling initial-value generating  
means take a fixed n-bit sequence, which are not all zero bits, shared with  
an other party of communication as said initial value when  
scrambling/descrambling, in the event that n bits extracted from a physical  
layer header section are all zeroes (col. 9, lines 46-50).**

As to claim 28, Ogawa discloses:

**wherein in the event that the number of logics "0" counted in said  
physical layer header section or a part thereof is zero, said  
scrambling/descrambling initial-value generating means take a fixed n-bit  
sequence, which are not all zero bits, shared with an other party of  
communication as said initial value when scrambling/descrambling (col. 9,  
lines 46-50).**

As to claims 36 and 38, Ogawa discloses:

**scrambling/descrambling initial-value acquiring means for acquiring  
an initial value when scrambling or descrambling from each physical layer  
header section (col. 2, lines 47-53; col. 8, lines 19-23, 43-47);**

**scrambling/descrambling means, using an initial value extracted from a physical layer header section, for performing scrambling or descrambling of the data section to be coupled with the physical layer header section (col. 2, lines 47-43; col. 8, lines 19-23, 43-47).**

As to claim 37, Ogawa discloses:

**wherein in the event of including a non-scrambled signal between a physical layer header section and a data section, said scrambling/descrambling means delays the start position of scrambling or descrambling of a data section by a predetermined period corresponding to transmission and reception of a non-scrambled section following transmission or reception of a physical layer header section (col. 9, lines 15-16, 38-41).**

As to claim 39, Ogawa discloses:

**wherein following the next physical layer header section appearing until said scrambling/descrambling initial-value acquiring means acquire an initial value when scrambling or descrambling, said scrambling/descrambling means perform scrambling or descrambling of the subsequent signals continuously using the initial value when scrambling or descrambling, which has been acquired last (col. 9, lines 50-53).**

As to claims 44 and 47, Ogawa discloses:

**a procedure for analyzing a physical layer header of a reception packet (col. 7, lines 16-22);**

**a procedure for setting the headmost data of said signal to be processed as an initial value in the internal state of said descrambler in the event that a normal value is set in a parity signal of said physical layer header as initial value setting information (col. 9, lines 31-35; col. 10, lines 30-34), and setting predetermined data included in said physical layer header other than said signal to be processed as an initial value in the internal state of said descrambler in the event that an abnormal value is set in a parity signal of said physical layer header as said initial value setting information (col. 9, lines 46-53; col. 10, lines 30-34);**

**a procedure for subjecting said signal to be processed to said predetermined arithmetic operation according to the internal state of said descrambler, and outputting this (col. 3, lines 20-23).**

As to claims 45 and 48, Ogawa discloses:

**a scrambling/descrambling initial-value generating step for generating an initial value when scrambling or descrambling using at least a part of a physical layer header section based on a rule common with an other party of communication (col. 10, lines 19-22, 30-34);**

**a scrambling/descrambling step for performing scrambling or  
descrambling of a data section using said initial value (col. 2, lines 47-53).**

As to claim 49, Ogawa discloses:

**wherein said scrambling/descrambling initial-value acquiring means  
generate an initial value when scrambling or descrambling using at least a  
part of a physical layer header section based on a rule common with an  
other party of communication (col. 10, lines 19-22, 30-34).**

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

18. Claims 22-27, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa as applied to claim 17 above, and further in view of Billhartz et al. (US 2003/0210788 A1 and Billhartz hereinafter).

As to claim 22, Ogawa fails to specifically disclose:

**wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means extract (n-k) bits from a physical layer header section or a part thereof based on a rule common with an other party of communication (wherein k is a natural number smaller than n), and insert a k-bit sequence such that at least 1 bit thereof includes logic "1", shared with the other party of communication in the extracted bit sequence of said (n-k) bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Billhartz.

Billhartz discloses a system and method for secure wireless local or metropolitan area network, the system and method having:

**wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means extract (n-k) bits from a physical layer header section or a part thereof**



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**based on a rule common with an other party of communication (i.e. random IV) (wherein  $k$  is a natural number smaller than  $n$ ), and insert a  $k$ -bit sequence such that at least 1 bit thereof includes logic "1", shared with the other party of communication in the extracted bit sequence (i.e. seed) of said  $(n-k)$  bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling (0035, lines 1-9; 0039, lines 1-6).**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Billhartz by padding bits with a sequence. Billhartz recites motivation by disclosing that concatenating the seed and the random IV generates a sequence of a certain size, which may provide further protection against a decryption dictionary attack (0014, lines 4-7). It is obvious that the teachings of Billhartz would have improved the teachings of Ogawa by padding bits with a sequence in order to provide a longer sequence for further protection against attacks.

As to claim 23, Ogawa fails to specifically disclose:

**wherein in the event that said initial value when scrambling/descrambling is  $n$  bits in length (wherein  $n$  is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a**

**part thereof, represent the number thereof with n bits in binary, and take this as said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Billhartz.

Billhartz discloses:

**wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a part thereof, represent the number thereof with n bits in binary, and take this as said initial value when scrambling/descrambling (0031, lines 2-8).**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Billhartz by generating an initial value based on counting logics. Billhartz recites motivation by disclosing that it may be cumbersome to continuously generate and/or distribute temporary or session keys to different nodes (0009, lines 1-4), and that using various IV generators such as counters may be used to generate key sequences (0031, lines 4-8). It is obvious that the teachings of Billhartz would have improved the teachings of Ogawa by generating values based on counting in order to provide key sequences without needing to continuously generate and distribute the sequences.

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As to claim 24, Ogawa discloses:

**wherein in the event that the number of logics "1" counted in said physical layer header section or a part thereof is zero, said scrambling/descrambling initial-value generating means take a fixed n-bit sequence, which are not all zero bits, shared with an other party of communication as said initial value when scrambling/descrambling (col. 9, lines 46-50).**

As to claim 25, Ogawa fails to specifically disclose:

**wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a part thereof, represent the number thereof with (n-m) bits in binary (wherein m is a natural number smaller than n), and insert an m-bit sequence such that at least 1 bit thereof includes logic "1", shared with an other party of communication in the extracted bit sequence of said (n-m) bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Billhartz.

Billhartz discloses:

**wherein in the event that said initial value when scrambling/descrambling is  $n$  bits in length (wherein  $n$  is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a part thereof, represent the number thereof with  $(n-m)$  bits in binary (wherein  $m$  is a natural number smaller than  $n$ ), and insert an  $m$ -bit sequence such that at least 1 bit thereof includes logic "1", shared with an other party of communication in the extracted bit sequence of said  $(n-m)$  bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling (0031, lines 2-8; 0035, lines 1-9; 0039, lines 1-6).**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Billhartz by generating a value by counting logics and padding bits with a sequence. Please refer to the motivation recited above with respect to claims 22 and 23 as to why it is obvious to apply the teachings of Billhartz to the teachings of Ogawa.

As to claim 26, Ogawa fails to specifically disclose:

**in the event that said initial value when scrambling/descrambling is  $n$  bits in length (wherein  $n$  is a natural number), said scrambling/descrambling initial-value generating means count the number**

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**of logics "1" in said physical layer header section or a part thereof, add x shared with an other party of communication (wherein x is a natural number smaller than  $2^n$ ) to the number thereof, represent the result with n bits in binary, and take this bit sequence as said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Billhartz.

Billhartz discloses:

**in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" in said physical layer header section or a part thereof, add x shared with an other party of communication (wherein x is a natural number smaller than  $2^n$ ) to the number thereof, represent the result with n bits in binary, and take this bit sequence as said initial value when scrambling/descrambling (0031, lines 2-8; 0035, lines 1-9).**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Billhartz by generating a value by counting logics and adding a shared number. Please refer to the teachings recited above with respect to claims 22 and 23 as to why it is obvious to apply the teachings of Billhartz to the teachings of Ogawa.

As to claim 27, Ogawa fails to specifically disclose:

**wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, represent the number thereof with n bits in binary, and take this as said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Billhartz.

Billhartz discloses:

**wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, represent the number thereof with n bits in binary, and take this as said initial value when scrambling/descrambling (0031, lines 2-8).**

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Billhartz by generating a value by counting logics. Please refer to the motivation recited above with respect to claim 23 as to why it is obvious to apply the teachings of Billhartz to the teachings of Ogawa.

As to claim 29, Ogawa fails to specifically disclose:

**wherein in the event that said initial value when scrambling/descrambling is  $n$  bits in length (wherein  $n$  is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, represent the number thereof with  $(n-m)$  bits in binary (wherein  $h$  is a natural number smaller than  $n$ ), insert an  $h$ -bit sequence such that at least one bit thereof is logic "1", shared with an other party of communication in the extracted bit sequence of said  $(n-h)$  bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Billhartz.

Billhartz discloses:

**wherein in the event that said initial value when scrambling/descrambling is  $n$  bits in length (wherein  $n$  is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, represent the number thereof with  $(n-m)$  bits in binary (wherein  $h$  is a natural number smaller than  $n$ ), insert an  $h$ -bit sequence such that at least one bit thereof is logic "1", shared with an other party of**

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**communication in the extracted bit sequence of said (n-h) bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling** (0031, lines 2-8; 0035, lines 1-9; 0039, lines 1-6).

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Billhartz by generating a value by counting logics and padding bits with a sequence. Please refer to the motivation recited above with respect to claims 22 and 23 as to why it is obvious to apply the teachings of Billhartz to the teachings of Ogawa.

As to claim 30, Ogawa fails to specifically disclose:

**wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, add y shared with an other party of communication (wherein y is a natural number smaller than 2n) to the number thereof, represent the result with n bits in binary, and take this bit sequence as said initial value when scrambling/descrambling.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Billhartz.



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Billhartz discloses:

**wherein in the event that said initial value when scrambling/descrambling is  $n$  bits in length (wherein  $n$  is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "0" in said physical layer header section or a part thereof, add  $y$  shared with an other party of communication (wherein  $y$  is a natural number smaller than  $2n$ ) to the number thereof, represent the result with  $n$  bits in binary, and take this bit sequence as said initial value when scrambling/descrambling** (0031, lines 2-8; 0035, lines 1-9).

Given the teaching of Billhartz, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Billhartz by generating a value by counting logics and adding a number. Please refer to the motivation recited above with respect to claims 22 and 23 as to why it is obvious to apply the teachings of Billhartz to the teachings of Ogawa.

19. Claims 43 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in view of Akiyama et al. (US Patent 6,460,137 B1 and Akiyama hereinafter).

As to claims 43 and 46, Ogawa discloses:

**a procedure for generating a physical layer header of a transmission packet** (col. 4, line 67; col. 5, lines 1-3, 66-67; col. 6, lines 1-5, 37-41);

**setting predetermined data included in said physical layer header as an initial value in the internal state of said scrambler, in the event of indicating that an initial value should be set in said internal state (col. 8, lines 19-23, 43-47);**

**a procedure for subjecting a signal to be processed in said transmission packet to a predetermined arithmetic operation according to the internal state of said scrambler, and outputting this (col. 3, lines 10-13).**

Ogawa fails to specifically disclose:

**a procedure for inverting a parity signal in said physical layer header.**

Nonetheless, this feature is well known in the art and would have been an obvious modification of the teachings disclosed by Ogawa, as taught by Akiyama.

Akiyama discloses a system and method for encryption processing, the system and method having:

**a procedure for inverting a parity signal in said physical layer header (col. 8, lines 49-51).**

Given the teaching of Akiyama, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the teachings of Ogawa with the teachings of Akiyama by inverting a signal. Akiyama recites motivation by disclosing that a logic value is inverted in accordance with the encrypted data, and then re-inverted when the data is restored to plaintext, thus indicating if the data is encrypted (col. 10, lines 54-63). It is obvious that the teachings

of Akiyama would have improved the teachings of Ogawa by inverting a signal in the header in order to provide an indication of whether the data is encrypted or not.

***Allowable Subject Matter***

20. Claims 31-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

21. The following is a statement of reasons for the indication of allowable subject matter:

Claim 31 discloses of “wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics “1” and the number of logics “0” in said physical layer header section or a part thereof respectively, and represent the absolute value of the difference thereof with n bits in binary, and take this as said initial value when scrambling/descrambling.” This feature, in combination with the other limitations in the claims, is not anticipated by, nor made obvious over, the prior art of record.

Claim 33 discloses of “wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics “1” and the number of logics “0” in said physical layer header section or a part thereof respectively, represent the absolute value of the difference thereof with (n-i) bits in

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binary, insert an i-bit sequence such that at least one bit thereof is logic "1", shared with an other party of communication in the extracted bit sequence of said (n-i) bits in a pattern shared with the other party of communication, and generate said initial value when scrambling/descrambling." This feature, in combination with the other limitations in the claims, is not anticipated by, nor made obvious over, the prior art of record.

Claim 34 discloses of "wherein in the event that said initial value when scrambling/descrambling is n bits in length (wherein n is a natural number), said scrambling/descrambling initial-value generating means count the number of logics "1" and the number of logics "0" in said physical layer header section or a part thereof respectively, obtain the absolute value of the difference thereof, add z shared with an other party of communication (wherein z is a natural number smaller than  $2n$ ) to the absolute value, represent the result with z bits in binary, and take this bit sequence as said initial value when scrambling/descrambling." This feature, in combination with the other limitations in the claims, is not anticipated by, nor made obvious over, the prior art of record.

It is noted that if claims 31, 33, and 34 were all rewritten into one independent claim, this would produce a contradictory claim since claims 31, 33, and 34 provide different initial-value generating means under the same condition (i.e. wherein in the event that said initial value when scrambling/descrambling is n bits in length).

***Prior Art Made of Record***

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Ajanovic et al. (US Patent 7,536,473 B2) discloses a system and method for implementing flow control.
- b. Ito (US Patent 7,760,881 B2) discloses a system and method for data processing and data reception processing.
- c. Jain et al. (US 2005/0183120 A1) discloses a system and method for multi-user personalized digital multimedia distribution.
- d. Tsang et al. (US Patent 7,701,975 B1) discloses a system and method for reducing physical layer overhead in wireless LAN systems.
- e. Wajs et al. (US 2010/0027795 A1) discloses a system and method for digital content distribution.
- f. Yi (US 2006/0153375 A1) discloses a system and method for data security in wireless networks.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Su whose telephone number is (571) 270-3835. The examiner can normally be reached on Monday through Friday 7:30AM-5:00PM EST..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William R. Korzuch/  
Supervisory Patent Examiner, Art Unit 2431

/Sarah Su/  
Examiner, Art Unit 2431